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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,498	10/01/2003	Adam L. Cohen	P-US080-A-MF	8256

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EXAMINER	
VAN, LUAN V	
ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/677,498	**Applicant(s)** COHEN ET AL.	
	Examiner Luan V. Van	**Art Unit** 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-52* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment of May 19, 2006 does not render the application allowable.

Status of Objections and Rejections

The objection to the drawings has been withdrawn in view of Applicant's amendment.

The objection to the disclosure has been withdrawn in view of Applicant's amendment.

The rejection of claims 1-52 under 35 U.S.C. 103(a) as being unpatentable over Cohen '630 in view of McFarland et al. is withdrawn in view of Applicant's amendment.

All other rejections from the previous office action are maintained.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 11-16, 22-24, 30-31, 38, 42-43, 48-49 and 52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10677546.

Regarding claims 11-16, 22-24, 30-31, 38, 42-43, 48-49 and 52, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, wherein the cells of the mask comprise independently controllable electrodes, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; and (4) selectively depositing a desired material onto the substrate.

In addition, Application '546 claims the steps of depositing structural materials and sacrificial materials as two different materials (claim 5); planarizing the surface of the deposited material (claim 22); using a dielectric conformable mask (claim 3); and moving the mask to a different location by an offset (claim 7).

The difference between the reference to Application '546 and the instant claims is that the reference does not explicitly teach providing a passage in proximity to the cell electrode by bringing the mask and the substrate into proximate positioning without achieving contact sealing (claims 11 and 48).

Application '546 claims using a computer-controlled stage for bringing a mask and the substrate into contact. Since the substrate and the mask are inherently nonplanar, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have recognized that a gap would be present between the mask and the substrate. It would have been further obvious to one having ordinary skill in the art to provide a gap between the mask and the substrate, because it would allow fresh electrolyte to enter the process pockets in order to replenish the metal ions in the electrolytic solution.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 3-10, 17-21, 29-30, 44-45 and 50-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10677546 in view of Cohen '630.

Regarding claims 1, 3-10, 17-21, 29-30, 44-45 and 50-51, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, wherein the cells of the mask comprise independently controllable electrodes, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; and (4) selectively depositing a desired material onto the substrate.

In addition, Application '546 claims the steps of depositing structural materials and sacrificial materials as two different materials (claim 5); planarizing the surface of the deposited material (claim 22); using a dielectric conformable mask (claim 3); and moving the mask to a different location by an offset (claim 7).

The difference between the reference to Application '546 and the instant claims is that the reference does not explicitly teach etching or selectively etching of material.

Cohen '630 teach a method for forming a 3-D structure comprising the steps of etching the surface of a porous medium to generate a relief pattern (column 12 lines 55-67). In addition, Cohen '630 teach that the anode can be redressed periodically by reversing the polarity of the anode and plating metal back onto the anode through the negative features of the mask (column 7 lines 48-57). By reversing the polarity of the anode, the mask would inherently perform etching on the substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Application '519 by etching the substrate as taught by Cohen '630, because it would generate a pattern such as voids for subsequent deposition to form a 3-D structure.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-31, 36, 38 and 40-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-48 of copending Application No. 10434519 in view of McFarland et al.

Regarding claims 1-31, 36, 38 and 40-52, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into proximate positioning or contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; (4) selectively etching material from the substrate or previously deposited material to form at least one void, comprising applying a desired electrical activation to at least one selected cell electrode and to the substrate; and (5) depositing a selected material into at least a portion of the at least one void.

In addition, Application '519 claims the steps of depositing structural materials and sacrificial materials (claim 25 and 28); planarizing the surface of the deposited material (claim 15 and 28); using a conformable contact mask (claim 47). The mask of Application '519 is a multi-cell mask, since pockets or cells are created by the masking material on the mask.

The difference between the reference to Application '519 and the instant claims is that the reference does not explicitly teach the cells of the mask comprise independently controllable electrodes.

McFarland et al. teach a method for electrochemically depositing materials on the substrate using an array of electrodes, wherein the electric potential of each electrode can be independently varied (column 3 lines 36-65). McFarland et al. teach that the method provides a potential masking method which generates spatially varying electric, magnetic, and/or chemical potentials across a substrate (column 3 lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Application '519 by using a mask having independently controllable electrodes as taught by McFarland et al., because having independently controllable electrodes allows the electric potential to be varied, and thus allows the thickness to be controlled at different locations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-50 of copending Application No. 10271574 in view of McFarland et al.

Regarding claims 1-52, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into proximate positioning or contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; (4) selectively etching material from the substrate or previously deposited material to form at least one void, comprising applying a desired electrical activation to at least one selected cell electrode and to the substrate; and (5) depositing a selected material into at least a portion of the at least one void.

In addition, Application '574 claims the steps of depositing structural materials and sacrificial materials (claim 21); planarizing the surface of the deposited material (claim 22); using a conformable contact mask (claim 1); varying the temperature of the conformable mask (claim 4), which can inherently create bubbles to inhibit etching or deposition; and detecting a first electrical parameter whose value depends on the location of a deposit within the opening (claim 28-33). The mask of Application '574 is a multi-cell mask, since pockets or cells are created by the masking material on the mask.

The difference between the reference to Application '574 and the instant claims is that the reference does not explicitly teach the cells of the mask comprise independently controllable electrodes.

McFarland et al. teach a method for electrochemically depositing materials on the substrate using an array of electrodes, wherein the electric potential of each electrode can be independently varied (column 3 lines 36-65). McFarland et al. teach that the method provides a potential masking method which generates spatially varying electric, magnetic, and/or chemical potentials across a substrate (column 3 lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Application '574 by using a mask having independently controllable electrodes as taught by McFarland et al., because having independently controllable electrodes allows the electric potential to be varied, and thus allows the thickness to be controlled at different locations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10724515 in view of McFarland et al.

Regarding claims 1-52, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into proximate positioning or contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; (4) selectively etching material from the substrate or previously deposited material to form at least one void, comprising applying a desired electrical activation to at least one selected cell electrode and to the substrate; and (5) depositing a selected material into at least a portion of the at least one void.

In addition, Application '515 claims the steps of planarizing the surface of the deposited material (claim 9); using a contact mask (claim 1). The mask of Application '574 is a multi-cell mask, since pockets or cells are created by the masking material on the mask.

The difference between the reference to Application '515 and the instant claims is that the reference does not explicitly teach the cells of the mask comprise independently controllable electrodes.

McFarland et al. teach a method for electrochemically depositing materials on the substrate using an array of electrodes, wherein the electric potential of each electrode can be independently varied (column 3 lines 36-65). McFarland et al. teach that the method provides a potential masking method which generates spatially varying electric, magnetic, and/or chemical potentials across a substrate (column 3 lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Application '515 by using a mask having independently controllable electrodes as taught by McFarland et al., because having independently controllable electrodes allows the electric potential to be varied, and thus allows the thickness to be controlled at different locations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-41 of copending Application No. 10309521 in view of McFarland et al.

Regarding claims 1-52, the copending application claims the following method:

A method for forming a multilayer three-dimensional structure comprising: (a) forming a layer of at least one material on a substrate that may include one or more previously deposited layers of one or more materials; (b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer to build up a three-dimensional structure from a plurality layers; wherein the forming of at least one layer, comprises: (1) supplying a substrate on which one or more successive depositions of one or more materials may have occurred; (2) supplying a multi-cell mask, wherein each cell is separated from other cells by a material, and wherein a pattern of dielectric material extends beyond the cell electrodes for proximate or contact positioning relative to the substrate and for forming process pockets when such proximate or contact positioning is achieved; (3) bringing the multi-cell mask and the substrate into proximate positioning or contact such that electrochemical process pockets are formed having a desired registration with respect to any previous depositions and providing a desired electrolyte solution such that the solution is located within the electrochemical process pockets; (4) selectively etching material from the substrate or previously deposited material to form at least one void, comprising applying a desired electrical activation to at least one selected cell electrode and to the substrate; and (5) depositing a selected material into at least a portion of the at least one void.

In addition, Application '521 claims the steps of depositing structural materials and sacrificial materials (claim 19); planarizing the surface of the deposited material (claim 2); using a conformable contact mask (claim 1). The mask of Application '521 is a multi-cell mask, since pockets or cells are created by the masking material on the mask.

The difference between the reference to Application '521 and the instant claims is that the reference does not explicitly teach the cells of the mask comprise independently controllable electrodes.

McFarland et al. teach a method for electrochemically depositing materials on the substrate using an array of electrodes, wherein the electric potential of each electrode can be independently varied (column 3 lines 36-65). McFarland et al. teach that the method provides a potential masking method which generates spatially varying electric, magnetic, and/or chemical potentials across a substrate (column 3 lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Application '521 by using a mask having independently controllable electrodes as taught by McFarland et al., because having independently controllable electrodes allows the electric potential to be varied, and thus allows the thickness to be controlled at different locations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

In the arguments presented on page 18 of the amendment, the applicant argues that Cohen '630 does not teach an independently controllable electrodes. The examiner agrees. Therefore, the rejection using Cohen '630 is withdrawn. Regarding the double patenting rejection over the copending applications, the applicant fails to clearly point out how the present application is distinct over at the copending applications and why it would not have been obvious to have modified the copending applications to obtain the present invention. Furthermore, according to MPEP 804.02, a rejection based on a nonstatutory type of double patenting can be avoided by filing a terminal disclaimer in the application or proceeding in which the rejection is made. *In re Vogel,* 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Knohl*, 386 F.2d 476, 155 USPQ 586 (CCPA 1967); and *In re Griswold*, 365 F.2d 834, 150 USPQ 804 (CCPA 1966). The use of a terminal disclaimer in overcoming a nonstatutory double patenting rejection is in the public interest because it encourages the disclosure of additional developments, the earlier filing of applications, and the earlier expiration of patents whereby the inventions covered become freely available to the public. *In re Jentoft*, 392 F.2d 633, 157 USPQ 363 (CCPA 1968); *In re Eckel*, 393 F.2d 848, 157 USPQ 415 (CCPA 1968); and *In re Braithwaite*, 379 F.2d 594, 154 USPQ 29 (CCPA 1967).

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan V. Van whose telephone number is 571-272-8521. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LVV
June 21, 2006

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